

REMARKS

The Office Action dated May 6, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 28-44, 47-49 and 52-56 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 45 and 46 have been cancelled without prejudice or disclaimer. New claim 57 has been added. Claims 1-27 were previously cancelled. No new matter has been added and no new issues are raised which require further consideration or search. Therefore, claims 28-44, and 47-57 are currently pending in the application and are respectfully submitted for consideration.

The Office Action rejected claims 28-30, 32-34, 38-42, 44, 49, and 52 under 35 U.S.C. §102(e) as being allegedly anticipated by U.S. Patent No. 6,650,288 of Pitt ("Pitt"). Applicants respectfully submit that said claims recite allowable subject matter for at least the following reasons.

Claim 28, upon which claims 29-44 and 47-48 are dependent, recites a method, which includes estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being satellites of a satellite positioning system, where obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station. The method further includes selecting a group of said plurality of satellites with the best

estimated visibilities with respect to the mobile station. The method further includes sending, to the mobile station, location assistance information relating to at least said group of satellites, where the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 49, upon which claims 50-51 are dependent, recites an apparatus, which includes an estimator configured to estimate visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said satellites being satellites of a satellite positioning system, where the estimator is further configured to take into account obstructions in the vicinity of the estimated location of the mobile station in estimating the visibilities of the plurality of satellites with respect to the mobile station. The apparatus further includes a selector configured to select a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station. The apparatus further includes a transmitter configured to transmit, to a mobile station, location assistance information relating to at least said group of satellites, where the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 52, upon which claims 53-54 are dependent, recites a system, which includes a receiver configured to receive a satellite positioning system configured to obtain location assistance information relating to satellites of the satellite positioning

system. The system further includes an estimator configured to estimate visibilities of a plurality of satellites of the satellite positioning system based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, where the estimator is further configured to take into account obstructions within the vicinity of the estimated location of the mobile station in estimating the visibilities of the plurality of satellites with respect to the mobile station. The system further includes a selector configured to select a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station. The system further includes a transmitter configured to transmit, to the mobile station, location assistance information relating to said group of satellites, where the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 55 recites an apparatus, which includes a receiver configured to receive a satellite positioning system configured to obtain location assistance information relating to satellites of the satellite positioning system. The apparatus further includes an estimator configured to estimate visibilities of a plurality of satellites of the satellite positioning system based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, where the estimator is further configured to take into account obstructions within the vicinity of the estimated location of the mobile station in estimating the visibilities of the plurality of satellites with respect to the mobile station. The apparatus further includes a selector configured to select a group of said

plurality of satellites with the best estimated visibilities with respect to the mobile station. The apparatus further includes a transmitter configured to transmit to the mobile station, location assistance information relating to said group of satellites, where the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 56 recites an apparatus, which includes estimating means for estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said satellites being satellites of a satellite positioning system, where the estimating means takes into account obstructions within the vicinity of the estimated location of the mobile station in estimating the visibilities of the plurality of satellites with respect to the mobile station. The apparatus further includes selecting means for selecting a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station. The apparatus further includes transmitting means for transmitting to a mobile station, location assistance information relating to at least said group of satellites, where the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 57 recites a computer program embodied on a computer readable medium, the computer program being configured to control a processor to perform estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being

satellites of a satellite positioning system, where obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station. The computer program is further configured to control a processor to perform selecting a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station. and sending, to the mobile station, location assistance information relating to at least said group of satellites, where the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Certain embodiments of the present invention provide a location assistance information to a mobile station in a communications network, and solve the problem of providing data suitable for positioning a mobile station in a fast and accurate way. The aim of such embodiments of the present invention is to provide location assistance information about the best suited satellites to the mobile station.

As will be discussed below, Pitt fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Pitt generally discloses that GPS satellites are culled into a minimum, preferred group having a longest dwell time within a cone of space, and communicated to mobile devices or subscribers within a particular region. The culling may initially be a list of GPS satellites visible to a particular base station at a particular time. (see Pitt at Abstract).

Applicants respectfully submit that Pitt fails to disclose, teach, or suggest, all of the elements of the present claims. For example, Pitt fails to disclose, teach, or suggest, at least, *“estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being satellites of a satellite positioning system, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station,”* as recited in independent claim 1, and similarly recited in independent claims 49, 52, and 55-57.

Applicants respectfully submit that the Office Action, in rejecting claims 45 and 46, correctly concluded that Pitt does not disclose estimating visibilities based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station. (see Office Action at section 3, page 5). Applicants further submit that independent claims 1, 49, 52, and 55-57 have been amended to recite estimating visibilities based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station. Thus, Applicants respectfully submit that Pitt fails to disclose, or suggest, *“estimating*

visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being satellites of a satellite positioning system, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station,” as recited in independent claim 1, and similarly recited in independent claims 49, 52, and 55-57.

While the reference of U.S. Patent No. 6,720,915 of Sheynblat (“Sheynblat”) was not relied upon in the rejection of independent claims 1, 49, 52, and 55-57, Applicants respectfully submit that Sheynblat also fails to disclose, or suggest, “*estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being satellites of a satellite positioning system, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station,”* as recited in independent claim 1, and similarly recited in independent claims 49, 52, and 55-57.

Sheynblat generally discloses a method and apparatus to obtain an ordered set of satellite position system (SPS) satellites, in view of a mobile SPS receiver, via a one or two-way communication with the mobile SPS receiver. The mobile SPS receiver receives an ordered set of SPS satellites from a cellular transmission site. The ordered set

of satellites are those in view of the mobile SPS receiver at a given time, such that the mobile SPS receiver may search for the SPS satellites according to an order of the ordered set of SPS satellites. (see Sheynblat at Abstract).

Applicants respectfully submit that Sheynblat merely discloses that the elevation and angle of the SPS satellites may be factors in determining the prioritized order in the ordered set of SPS satellites. (see Sheynblat at col. 8, lines 43-46). There is simply no disclosure, or suggestion, of taking into account obstructions in the vicinity of the estimated location of the mobile station in estimating visibilities of the satellites. In fact, there is no mention of obstructions whatsoever in Sheynblat.

Therefore, for at least the reasons discussed above, neither Pitt, nor Sheynblat, whether considered individually, or in combination, disclose, teach, or suggest, all of the elements of independent claims 1, 49, 52, and 55-57. For the reasons stated above, Applicants respectfully request that this rejection be withdrawn.

Claims 28-30, 32-34, and 38-42 depend upon independent claims 28. Thus, Applicants respectfully submit that claims 28-30, 32-34, and 38-42 should be allowed for at least their dependence upon independent claim 28, and for the specific elements recited therein.

The Office Action rejected claims 28, 30-31, 35-37, 42-43, 47-50, and 52 under 35 U.S.C. § 103(a) as being unpatentable over Pitt, in view of U.S. Patent 7,009,948 of Carlsson (“Carlsson”). With respect to claims 28, 30, 49, and 52, the Office Action took the position that “even if Pitt [does] not inherently disclose sending assistance message

... Carlsson teaches the use of assistance message sending to mobile for helping position fix.” (see Office Action at page 4). With respect to the remaining claims, the Office Action took the position that Pitt discloses all the elements of the claims with the exception of certain elements of claims 31, 35-37, 42-43, 47-48, and 50. The Office Action then cited Carlsson as allegedly curing the deficiencies of Pitt. Applicants respectfully submit that said claims recite allowable subject matter for at least the following reasons.

The description of the independent claims and the advantages of certain embodiments of the invention, as discussed above, are incorporated herein.

The description of Pitt, as discussed above, is incorporated herein. Carlsson generally discloses a method for performing a position fix by a mobile terminal camped on a packet control channel. The method includes transmitting a request for Global Positioning System assistance data via the packet control channel and receiving the requested assistance data via the packet control channel. The method also includes performing the position fix using the received assistance data. (see Carlsson at Abstract).

Similar to the discussion above, Applicants respectfully submit that the Office Action, in rejecting claims 45 and 46, correctly concluded that the hypothetical combination of Pitt and Carlsson does not disclose estimating visibilities based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of

satellites with respect to the mobile station. (see Office Action at section 3, page 5). As discussed above, independent claims 1, 49, 52, and 55-57 have been amended to recite estimating visibilities based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station. Thus, Applicants respectfully submit that Pitt and Carlsson, whether considered individually, or in combination, fail to disclose, or suggest, *“estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being satellites of a satellite positioning system, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station,”* as recited in independent claim 1, and similarly recited in independent claims 49, 52, and 55-57.

Furthermore, while the reference of U.S. Patent No. 6,720,915 of Sheynblat (“Sheynblat”) was not relied upon in the rejection of independent claims 1, 49, 52, and 55-57, Applicants respectfully submit that Pitt, Carlsson, and Sheynblat, whether considered individually, or in combination, fail to disclose, teach, or suggest, all of the elements of independent claims 1, 49, 52, and 55-57, similar to the reasons why Pitt and Sheynblat, whether considered individually, or in combination, fail to disclose, teach, or

suggest, all of the elements of independent claims 1, 49, 52, and 55-57, as discussed above.

Finally, claims 30-31, 35-37, 42-43, and 47-48 depend upon independent claim 28, while claim 50 depends upon independent claim 49. Thus, Applicants respectfully submit that claims 30-31, 35-37, 42-43, 47-48, and 50 should be allowed for at least their dependence upon independent claims 28 and 49, respectively, and for the specific elements recited therein.

The Office Action rejected claims 45-46, 51, and 53-54 under 35 U.S.C. §103(a) as being allegedly unpatentable over Pitt, in view of Carlsson, and further in view of Sheynblat. The Office Action took the position that the combination of Pitt and Carlsson discloses all the elements of the claims with the exception of certain elements of claims 45-46, 51, and 53-54. The Office Action then cited Sheynblat as allegedly curing the deficiencies of Pitt and Carlsson. Claims 45-46 have been cancelled, and said cancellation moots the rejection, with respect to those claims. With respect to the remaining claims, Applicants respectfully submit that the remaining claims recite allowable subject matter for at least the following reasons.

The descriptions of Pitt, Carlsson, and Sheynblat, as discussed above, are incorporated herein.

Claim 51 depends upon independent claim 49, and claims 53-54 depend upon independent claim 52. As discussed above, the combination of Pitt and Carlsson does not disclose, teach, or suggest all of the elements of independent claims 49 and 52.

Furthermore, Sheynblat does not cure the deficiencies in Pitt and Carlsson, as Sheynblat also does not disclose, teach, or suggest, at least, *“an estimator configured to estimate visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said satellites being satellites of a satellite positioning system, wherein the estimator is further configured to take into account obstructions in the vicinity of the estimated location of the mobile station in estimating the visibilities of the plurality of satellites with respect to the mobile station,”* as recited in independent claim 49, and similarly recited in independent claim 52, for the reasons discussed above. Thus, the combination of Pitt, Carlsson, and Sheynblat does not disclose, teach, or suggest all of the elements of claims 51 and 53-54. Additionally, claims 51 and 53-54 should be allowed for at least their dependence upon independent claims 49 and 52, respectively, and for the specific elements recited therein.

Although the Office Action Summary indicated that claims 55 and 56 are rejected, The Detailed Action failed to address the status of claims 55 and 56. Therefore, Applicants respectfully submit that claims 55 and 56 recite allowable subject matter. If Applicants are in error, then Applicants respectfully request a new non-final Office Action detailing the status of claims 55 and 56.

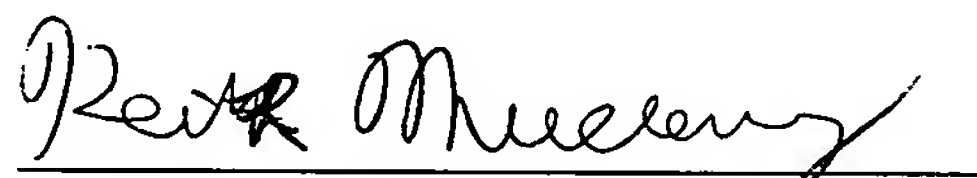
For at least the reasons discussed above, Applicants respectfully submit that the cited prior art references fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention

unanticipated and unobvious. It is therefore respectfully requested that all of claims 28-44, and 47-57 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Additional Claim Fee Transmittal
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